BIOS

Alberta Society of Professional Biologists • June 2001

Volume 16 • Number 2

ECOAGRICULTURE

Developed over a two-year period, "*Common Ground, Common Future: How Ecoagriculture Can Help Feed the World and Save Wild Biodiversity*" provides a systematic review of existing agricultural and ecological literature and local farming practices. Prepared by the World Conservation Union (IUCN) and Future Harvest, the report indicates that almost half of the world's 17,000 major nature reserves are being heavily used for agriculture and that extreme malnutrition and hunger are pervasive among people living in at least 16 of the world's 25 key biodiversity "hotspots," where wildlife is most at risk.

Given that clearing and using land for agriculture is the chief cause of biodiversity extinction and that widespread hunger is persistent in areas with the world's richest biodiversity, many plants and animals will go extinct unless ecosystems are managed to feed people and protect wild species simultaneously, according to the report.

The report outlines a new approach, called 'ecoagriculture,' to help farmers to grow more food while conserving habitats critical to wildlife. The approach dramatically breaks with both traditional conservation policies and common agriculture techniques.

"*Many people believe that biodiversity can be preserved simply by fencing it off,*" said co-author Jeffrey A. McNeely, chief scientist of IUCN. "*In fact, farms and nature reserves are actually sharing common ground in many countries where species are most at risk. To avert widespread extinctions and feed the world, we must integrate biodiversity preservation into all landscapes - from grazing lands to coffee plantations to rice paddies.*"

"*The ecoagriculture approach recognizes the fact that endangered species and desperately poor humans occupy the same ground,*" said co-author Sara J. Scherr, fellow of the nonprofit Forest Trends and adjunct professor in the Agricultural and Resources Economics Department at the University of Maryland. "*Ecoagriculture could transform agriculture and environmental protection to save wild biodiversity while also addressing the realities of human hunger and population growth.*"

> "to grow more food while conserving habitats critical to wildlife."

Wild biodiversity in all of its forms has intrinsic value, but it also has practical value, such as maintaining the essential balance of the Earth's atmosphere, protecting watersheds, renewing soil, and recycling nutrients - roles essential for farming. Protected areas intended to preserve biodiversity encompass 10 percent of the Earth's land surface. However, 45 percent of the world's major

continued on page 7

IN THIS ISSUE

Ecoagriculture 1
#26 AGM 3
Biologists Regulation Update 3
Bios Bits 4
Bios Bits 5
Wild Species 2000 6
ASPB Scholarship Winner 7
Canada's Biodiversity - Quick Facts 8

Alberta Society of Professional Biologists
P.O. Box 21104
Edmonton, Alberta
T6R 2V4
Tel: (780) 434-5765
or 1-800-711-5765
Fax: (780) 413-0076
E-mail: pbiol@aspb.ab.ca
http://www.aspb.ab.ca

President
Petr Komers (403) 219-1245
President Elect
Judy Bennett (403) 221-3003
Past President
Garry Hornbeck (403) 281-3782
Secretary
Henry Epp (403) 201-2583
Treasurer
David Ealey (780) 427-1716
Director (Registration)
Doug Collister (403) 240-1635
Director
Maureen Brown (780) 468-3545
Director
Maire Luoma (403) 716-8135
Director
Robert Dallas (403) 735-2245
Director
Paul Kalashnikoff (780) 468-3545
Public Member
Stuart Ross (403) 777-0111
Registrar
Carl Warner (403) 248-4331
Discipline Committee
Brian Bietz (403) 297-4303
Practice Review Committee
Don McCabe (403) 297-5944
Professional Liaison
Rob Powell (780) 422-1977
Awards
David Ealey (780) 427-1716
Professional Development (Calgary)
Judy Bennett (403) 221-3003
Professional Development (Edmonton)
Stacey Schaub-Szabo (780) 450-5360
Communications/Marketing
Terry Antoniuk (403) 266-6363
BIOS Editor
Gavin More (403) 239-4248
Office Administrator
Jill Lane (780) 434-5765

BIOS is written for the enjoyment of the members of the Alberta Society of Professional Biologists and those interested in the field of professional biology. Articles or comments are welcomed and should be communicated to the ASPB Office. Editing and layout by Gavin More, 49 NORTH Creative Learning and Training.

WELCOME NEW MEMBERS

Regular: Laurie Buckland, Markus Eymann, Karen Graham, Ryan Hornett, James Kozey, Colleen Prather

Biologist In Training: Mark Boulton, Kristina Norstrom, Tracy Hackbarth, Chris Stroich

Membership Update

ASPB membership as of March 31, 2001: **Total 459**

Regular	367	Biologist in Training	34	Inactive	30
Student	17	Retired	5	Honorary	6

New Society Mailing Address

The new mailing address for the ASPB is now P.O. Box 21104, Edmonton, Alberta T6R 2V4. While the phone number, toll free phone number and email are unchanged, the fax number has changed to 780-413-0076.

New Directors Announced

This year, all board positions were by acclamation.

Judy Bennett	President-Elect
Henry Epp	Secretary
Robert Dallas	Director
Paul Kalashnikoff	Director
Maire Luoma	Director

Public Member

The ASPB has had a history of support through the valuable insight and input of public members. The Board would like to welcome the newest public member:

Stuart Ross of Ross-Vescarelli Barristers and Solicitors

AGM #26

The 26th Annual General Meeting of the Society was held on April 19, 2001 at the Radisson Hotel Calgary Airport with 41 people in attendance.

Outgoing president Garry Hornbeck reviewed the major changes and activities of the Society for the past year:

- Jill Lane from ManageWise, Inc. replaced Bonnie Holtby as office administrator.
- Michele McKenzie completed her term of office. The Society is waiting government approval of our candidate.
- The ASPB board held a Strategic Workshop in January to determine the direction of the board. (Minutes are available).
- The board is reviewing the association's mission statement.

In closing, Garry encouraged all members to get involved with the ASPB board and emphasized that there are many rewards working with a group of peers and pooling ideas.

The committee chairs of Brian Bietz (Discipline); Carl Warner (Registrar); Doug Collister (Registration); and Don McCabe (Practice Review) each reviewed the past year's activities.

A number of questions were posed to the Board related to the disposition of the revenues from the successful 2000 CEEM Symposium. In summary to all questions, Al Kennedy is completing the Symposium proceedings which will be mailed to all participants. Once the remaining activities are completed, there will be a financial audit. The new board will then decide how to expend the excess funds.

Members provided suggestions for the incoming board to consider. These included:

- Funding an Executive Director.
- Advertising to increase membership and promote the association.
- Investing the funds.
- Developing a mentor program to match members with students or grad students to promote different areas of biology. (The professional development committee was tasked to develop a mentoring program.)
- Pairing new members and/or students at lunch or a conference.
- Hosting spring and fall member get-together events.

This past year the ASPB membership had an increase of approximately 100 new members. The 2002 annual membership fees were set at:

Regular Member	$225
Biologists-in-Training	$45
Inactive Member	$45
Retired Member	$45
Student Member	$25

Garry thanked the outgoing board members for their hard work and dedication with special mention of Maire Luoma for two years as secretary, and Jeanette Nixon as Past President. Garry also thanked Michele McKenzie for her 3 years as Public Member.

After the elections were announced Garry turned the meeting over to Petr Komers, the 2001 ASPB President. Petr Komers stated there were three areas he would like to focus on throughout the next year:

Services to members - providing a level of competency.

Protecting the public - providing assurance to the public that ASPB members are competent.

Services to members and public - provide a voice to the public worthy of being recognized.

In closing, Petr encouraged members to assist the board with input on ASPB's efforts to directly support these key issues. He encouraged all members to become involved with the goals and mission of the society.

Biologists Regulation Update

The Society is entering the final phase leading to a new Professional Biologists Regulation. A revised draft Regulation was recently received from Legislative Counsel. This draft incorporates two important changes. One is the inclusion of the important "exclusive right of title" clause. This was enabled by the passage of the Miscellaneous Statutes Amendment Act on May 31, 2001. This amended POARA (Professions and Occupations Association Regulation Act) to support this important function for professional associations under the Act.

Secondly, the Regulatory Review Secretariat has decided that it does not require a review of professional legislation every five years. The result is the proposed expiry clause has been removed from the draft. In addition the Secretariat has decided that the Regulation amendments do not require a review, something that should lead to speedier approval of our new Regulation.

The final tasks for the Society are the preparation of final letters to stakeholders explaining what comments were received and what the Society has determined is its best course of action. Secondly, and most importantly, all regular members must vote on the draft Regulation through a mail-in ballot. The Board will determine the date for the vote and will distribute materials on the proposed regulation, and voting materials. Stay tuned!

Bios Bits

Parks and Protected Areas Act

The proposed Parks and Protected Areas Act is new legislation that will consolidate the management of Alberta's parks and other protected areas under a single piece of legislation. Currently, these areas are managed under the Provincial Parks Act; the Wilderness Areas, Ecological Reserves and Natural Areas Act; and the Willmore Wilderness Park Act.

The proposed Act is intended to provide a single, clear piece of legislation to:

- consolidate, update and improve Alberta's parks and protected areas legislation;
- establish a revised system of classes of protected areas;
- clarify the purpose and management requirements of each class;
- provide for the long-term management and protection of Alberta's expanded parks and protected areas system.

The Parks and Protected Areas Act will be developed as a new Bill following further review of an MLA Committee recommendations and interdepartmental discussions. The new Bill would replace the Natural Heritage Act, which will not be reintroduced.

Source: Alberta Community Development April 23, 2001. (www.gov.ab.ca/env/parks/ppa_act/ppa_act.html)

North America Ahead On DDT Elimination

More than three decades ago, Rachel Carson's "Silent Spring" highlighted the risks of DDT and other pesticides by evoking the haunting image of a springtime without birds. The resulting media attention led to legal action by several countries to ban or severely restrict the use of DDT in the early 1970s.

As environment ministers from around the world signed the Persistent Organic Pollutants (POPs) treaty in Stockholm in late May 2001, use of one of the most infamous POPs of all, DDT, had already been eliminated from use in Canada, Mexico and the United States.

The poison is highly mobile and tends to travel northward toward colder climes through repeated cycles of evaporation, migration with the winds, condensation and precipitation. Though DDT was banned in Canada and the US years ago, it had continued to be used in Mexico to combat mosquitoes that carry malaria.

Working together through the North American Commission for Environmental Cooperation, the three NAFTA partners launched a North American Regional Action Plan (NARAP) in 1997 aimed at phasing out Mexico's use of DDT by 80 percent by 2000.

Efforts focused primarily on alternative ways of controlling mosquitoes, particularly nonchemical methods such as community participation in the environmental management of mosquitoes, the use of bacilli and nematodes to control the insects, and improvements to the Mexican Health Secretariat's system for surveillance, diagnosis and treatment of malaria. So effective was the program that use of the pesticide was reduced by 100 percent by the target date.

The success of the NARAP on DDT was due in large measure to Mexico's bold yet prudent leadership in the face of malaria, a major killer in many tropical regions. North America is well on the way to being essentially a DDT-free zone, putting it ahead of its commitments under the POPs treaty.

For more information on the success of the North American Regional Action Plan on DDT, consult the CECs web site for the following:

- DDT already eliminated in North America as world prepares to sign POPs treaty
- History of DDT in North America to 1997
- Historic Stockholm treaty and NAFTA experience show way toward healthier world

Source: Trio Summer 2001 (www.cec.org/trio/stories/index.cfm?varlan=english&ed=4&ID=51)

Stockholm Convention on Persistent Organic Pollutants

Canada was among the many countries who ratified the Convention on Persistent Organic Pollutants (POPs) 22 to 23 May 2001 in Stockholm, Sweden. POPs are chemical substances that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment.

With the evidence of long-range transport of these substances to regions where they have never been used or produced and the consequent threats they pose to the environment of the whole globe, the international community has called for urgent global actions to reduce and eliminate releases of these chemicals.

Download the final Act at www.chem.unep.ch/pops/

Automated Metric Conversion Calculator

Ever need to do quick metric conversions but can't remember the formulas? If so, bookmark this internet site for quick reference. You can do automatic calculations for basic conversions including: length, area, volume, weight and temperature or click for a formulae page to perform more advanced calculations.

www.admiralmetals.com/metric_conv.htm

BIOS BITS

Industry Canada's Sustainable Development Strategy

Industry Canada's Sustainable Development Strategy for 2000-2003 is guided by a commitment to promote sustainable development as part of its mandate to create the foundation for a more productive, competitive, knowledge-based economy. This Strategy calls for the Department to play a leadership role and form partnerships to promote sustainable development by promoting eco-efficient practices, tools and technologies, encouraging the development of environmental technologies and improving the integration of sustainable development objectives into the Department's decision-making processes.

Industry Canada's Sustainable Development Strategy for 2000-2003 focuses on three critical areas:

- Productivity Through Eco-Efficiency
- Environmental Technologies
- integrating Sustainable Development into Decision Making

For a copy of the strategy visit: http://strategis.ic.gc.ca/SSG/sd00228e.html?newstrategis=e

Meridian Dam Study

Alberta Environment and Sask Water are joining forces to assess the costs and benefits of building a dam on the Saskatchewan / Alberta border. The assessment of the 'Meridian Dam' project will determine whether or not a larger scale feasibility study should move forward.

The proposed dam would be located on the South Saskatchewan River, just inside Alberta. It would create a reservoir in the South Saskatchewan River Valley that would extend upstream nearly to the City of Medicine Hat.

The assessment will cost about $100,000 and is slated to wrap up at the end of the year. At that time, if it is deemed that there is some cost benefit for moving forward, the parties will discuss entering into a feasibility study.

During the assessment, all environmental issues will be identified. If it is determined that a feasibility study should go ahead, all these issues will be analysed carefully.

A dam and reservoir concept for the South Saskatchewan River has been envisioned as far back as 1920. Proponents of the dam say it will bring needed hydroelectric power and irrigation to the area for special crop production, as well as provide recreational benefits.

"When you have dry years such as this one, it really drives home the need to look at all potential avenues of alleviating the problem," said Environment Minister Taylor. "Whether this is the right one or not, we want to find out."

Source: Alberta Environment

Mountain Caribou in 21st Century Ecosystems

October 15 -17, 2002
Revelstoke, BC

The Columbia Mountains Institute of Applied Ecology will host a three day conference focussing on the ecology and management of Mountain Caribou. The event will include two days of presentations and one day of field trips.

Topics to be covered include:

- Mountain Caribou biology
- Status of populations
- Captive breeding programs
- Stress on populations from recreation, predation, and fragmentation of habitat
- Management of forest operations, including a review of Caribou Habitat Recruitment Guidelines
- Assessment of Mountain Caribou as an umbrella species for conservation of old-growth biodiversity
- Habitat analysis and mapping

Registration information Columbia Mountain Institute web site: www.cmiae.org

Conserving and Protecting Wildlife and Wildlife Habitat Through Wildlife Rehabilitation

November 14-17, 2001
Lake Buena Vista, Florida

Topics related to wildlife rehabilitation will include:

- Veterinary Medicine
- Wildlife Husbandry
- Conservation Biology (e.g. habitat issues, banding, pesticides)
- Conservation Education (e.g. program development, animal use issues)
- Administration (e.g. leadership, fundraising, recruitment)

For information: International Wildlife Rehabilitation Council http://iwrc-online.org/

Wildlife Rehabilitation Standards

Revised and updated, the 3rd Edition of Minimum Standards for Wildlife Rehabilitation represents the most current knowledge, expertise and techniques in this field. It is a reflection of what has been learned collectively and successfully applied over the last three decades.

These Minimum Standards are based on accepted norms in biology, medicine, behaviour, natural history, and wildlife rehabilitation. The information is pertinent to all who rehabilitate wildlife, regardless of numbers and types of wildlife cared for, budget size, number of paid or volunteer staff, and size and location of activity.

Download for free at http://iwrc-online.org/standards.html

Wild Species 2000

Canada is home to over 70,000 wild species, including, but by no means limited to, birds, mammals, fish, frogs, and snakes; trees, flowers, and mushrooms; and bees, butterflies, and worms. These species, and other aspects of nature, are much valued by Canadians. Wild species provide a host of resources, such as foods, medicines, and materials, as well as services such as cleaning the air and water, regulating the climate, generating and conserving soils, pollinating crops, and controlling pests, to name only a few.

Canadians take pride in, and profit internationally from, a reputation for pristine landscapes with abundant wildlife. Above all else, Canadians value the aesthetic splendour and spiritual nourishment still afforded by the incredible range of wild species inhabiting our land.

To prevent the loss of species due to human actions the first - and essential - step is detecting the problem and understanding its scope. Wild Species 2000: The General Status of Species in Canada website and published report with CD provides an overview of the status of Canada's species of wild flora and fauna.

Grey Treefrog (Hyta versicolor) M. Runtz

It reflects a commitment made under the Accord for the Protection of Species at Risk, an agreement established in 1996 by provincial, territorial, and federal Ministers responsible for wildlife. The Accord commits the parties to "*monitor, assess and report regularly on the status of all wild species*". Wild Species 2000 is the first of these reports, with others to be released every five years.

Wild Species 2000 establishes for the first time a comprehensive, common platform for examining the general status of Canada's species across their Canadian range and a solid baseline against which future changes in the distribution and abundance of species can be compared. It is a report card to all Canadians, a guide indicating where more information is needed, an effective tool for improved conservation, and a testament to the cooperative will of Canadians to protect wild species.

The report provides the general status assessments for a broad cross-section of over 1,600 Canadian species, from all provinces, territories, and ocean regions. Species from eight major groups were evaluated, accounting for most of Canada's vertebrate species (freshwater fishes, amphibians, reptiles, birds, and mammals), a representative invertebrate group (butterflies), and two very different plant groups (ferns and orchids).

Assessments were done by integrating information on population sizes, trends, distribution, and threats, to generate an expert evaluation of the general status of the species.

All species were classified as either Extirpated/Extinct, At Risk, May Be At Risk, Sensitive, Secure, Undetermined, Not Assessed, Exotic, or Accidental. As a result, species can be prioritized in terms of the effort and attention needed to prevent their loss: some species are apparently secure, others show early signs of trouble and should be watched, still others need attention now. General status assessments will be repeated periodically to develop a picture of trends in species status.

Only (2%) of Canada's overall species richness is captured in the report. Birds comprise the largest species group studied (639 species), followed by butterflies (302 species) and freshwater fishes (237 species). Results indicate that about 65% of Canada's wild species are 'Secure at all geographic scales'. However, across species groups, the proportion of Secure species is highly variable - ranging from a low of 40% for marine and terrestrial reptiles to a high of 67% for marine and terrestrial mammals. The report also paints a more grave picture for other wild species in Canada - 5% are known to be At Risk and another 5% May Be At Risk.

As predators, parasites, and competitors of native species Exotics are considered one of the emerging challenges for biodiversity conservation. Importantly, freshwater fish make up the majority of Exotics species recorded - 21 species in total - many of which have the potential to cause ecological disturbance in aquatic communities.

The CD found in the report contains a copy of the report in electronic (.pdf) format, as well as general status ranks for species covered. Data are available in both Microsoft Excel 2000 (.xls) and text (.txt) formats. Datasets and a "search tool" for customizing them are also available at the website (http://www.wildspecies.ca).

Canadian Endangered Species Conservation Council (CESCC). 2001. Wild Species 2000: The General Status of Species in Canada. Ottawa: Minister of Public Works and Government Services Canada. Cat. No. CW70-7/200E

Issued also in French : Espèces Sauvages 2000: La situation générale des espèces au Canada

Source: www.wildspecies.ca/en/home_E.html

STRATEGY continued from page 1

protected reserves are themselves heavily used for agriculture. In other reserves, protected areas are interspersed with agricultural land, overlap with agricultural land, or are located adjacent to major agricultural frontiers. If only the existing protected areas were to continue as wildlife habitat, between 30 and 50 percent of the species in those areas would be lost.

More than 1.1 billion people - 20 percent of the world's population - live within the 25 most threatened, species-rich areas of the world. The majority of these hotspots are also located in areas with very high malnutrition - home to fully one-quarter of all the undernourished people in the developing world.

If forest clearing continues at present rates, the world's forests could lose more than half of their remaining species in the next 50 years, the researchers warn. Today, nearly 24 percent of mammals, over 12 percent of birds, and almost 14 percent of plants are threatened with extinction.

The report documents six key ecoagriculture strategies in use around the world (see Box). These methods can help farmers in industrialized and developing countries protect wild species and conserve habitat on and near their land while actually increasing agricultural production and farmer incomes. The report provides several dozen case studies of successful ecoagriculture systems being undertaken in Australia, the United Kingdom, the United States, Canada, Europe, Latin America, Africa, and Asia.

"*Many of the new approaches in ecoagriculture will require a change in mindset for many farmers,*" said Scherr. "*For centuries, farmers have generally done their best to clear land of natural vegetation and keep wildlife off their farms. This was the sign of a good farmer. Now we're asking farmers to let some of the wild back in.*" According to Scherr, in the past it was not known which species of insects, plants, and animals would be harmful to farm production, and all were cleared away. But many such farm practices may inadvertently destroy useful wildlife habitat without actually contributing to farm productivity.

Barbara Rose, executive director of Future Harvest said, "*This report signals the beginning of an international effort to raise awareness about farming approaches that are not only highly productive, but also preserve the environment upon which all life on Earth depends. Much more research is needed for poor farmers to benefit from, rather than pay the cost of, conserving biodiversity, while also growing the food they need for their families and livelihoods.*"

Source: Future Harvest News Release London, 8 May 2001.
www.futureharvest.org/earth/biodiversityen.shtml

ECOAGRICULTURE STRATEGIES

Strategy 1: Reduce habitat destruction by increasing productivity on land already farmed.

Strategy 2: Develop networks of wildlife habitat that link noncultivated spaces.

Strategy 3: Establish protected reserves near farming areas, ranchlands and fisheries.

Strategy 4: Integrate perennial plants into farming systems to mimic natural habitat.

Strategy 5: Use farming methods that minimize agricultural pollution.

Strategy 6: Modify resource management practices to enhance habitat value of productive lands.

ASPB Scholarship Winner Heads to Harvard

Aime Shen, recipient of the 2001 ASPB Scholarship at the University of Alberta, graduated with perfect grades in science. Aimee will head to Harvard to study microbiology after being honoured as one of two University of Alberta undergrads with the highest academic standing. Aimee also received a C.D. Howe memorial fellowship for highest overall academic standing during her academic career.

Aimee selected microbiology for the challenge of working with bacteria. "What I really like is how they outsmart the immune system." is quoted as saying in the Edmonton Journal.

Aimee is obviously an exceptional person. She won an English award for the best essay on 20th Century literature and volunteered as as a mentor at Norwood school.

We wish Aimee all the best in her doctorate program.

Source: Allan Chambers, Edmonton Journal June 8, 2001.

Canada's Biodiversity - Quick Facts

Freshwater Fishes - Quick Facts

- ~10,000 freshwater fishes (about 20% of all vertebrate species) globally.
- 230 resident species of freshwater fishes in Canada, (7 Extirpated/Extinct species also occurred here).
- Ontario and Quebec have much higher species richness than other regions (155 and 114 species, respectively).
- Across provinces, an average of 53% of species are ranked Secure.
- From 0 to 10% of freshwater fish are considered At Risk, depending on the province or territory.
- At least 10% of freshwater fish species richness is made up of Exotic species.
- Seven species are Extinct in Canada, while two more are Extirpated in one or more provinces.
- Exotic species (e.g., Sea Lamprey) are implicated in freshwater fish extinctions.

Ferns - Quick Facts

- ~11,000 species of ferns globally.
- 122 resident species in Canada.
- Ontario, British Columbia, and Quebec have the most species of ferns (78, 78, and 75 species, respectively).
- About two-thirds (65%, 79 species) of species in Canada are considered Secure.
- Three species (3%) of ferns in Canada are considered At Risk.
- Threats to ferns include habitat loss, toxins, and physical disturbance.
- Ferns are among the oldest living vascular plants.

Orchids - Quick Facts

- >30,000 orchid species globally.
- 77 resident species in Canada.
- Ontario and Quebec have the most orchid species (61 and 50, respectively).
- The majority of Canada's orchid species (65%, 50 species) are considered Secure.
- Seven (9%) of Canada's orchid species are considered At Risk.
- Many orchids grow slowly (e.g., Showy Lady's-slipper - up to 16 years from seed to flower).
- Showy orchids are most severely impacted by collection from the wild.

Butterfly - Quick Facts

- ~20,000 butterfly species globally, .
- 284 resident species of butterflies in Canada, (18 Accidental species have also been found here).
- British Columbia has a higher species richness (182 species) than any other region.
- Most species (45%) are Secure at the provincial/territorial level.
- At least three species are At Risk.
- The Cabbage White and European Skipper are Canada's only known Exotic butterflies.
- Adult butterflies are key plant pollinators.
- Monarchs migrate thousands of km to avoid the Canadian winter.

Amphibians - Quick Facts

- ~4,780 amphibian species globally.
- 45 species of amphibians - 24 frogs and toads and 21 salamanders in Canada.
- Ontario has more amphibian species (23) than any other province or territory.
- Twenty-nine (64%) amphibian species in Canada are considered Secure.
- Four (9%) amphibian species in Canada are considered At Risk.
- Amphibians are believed to be environmental indicator species.
- Globally, populations of many amphibian species are believed to be declining.

Reptiles - Quick Facts

- >6,500 species globally.
- 42 species of terrestrial reptiles: 10 turtles, 25 snakes, and seven lizards in Canada.
- Canadian waters provide habitat for two resident species of marine reptiles - both turtles.
- Ontario has the most reptile species (26).
- Less than half (43%, 18 species) of Canadian reptile species are considered Secure.
- One-fifth (21%, nine species) of Canadian species are considered At Risk.
- Yukon Territory, Newfoundland, and Labrador have no reptile species.
- Only one reptile has more than 50% of its range in Canada (Northern Alligator Lizard).

Birds - Quick Facts

- ~462 resident species of birds in Canada (excluding Extirpated/Extinct and Accidental species).
- British Columbia and Ontario have the most bird species (362 and 318, respectively), excluding Accidental and Extirpated/Extinct species.
- Three hundred and forty-five (75%) Canadian bird species are considered Secure.
- Twenty-one (5%) Canadian bird species are considered At Risk.
- Harris' Sparrow is the only endemic Canadian bird.
- A large number of Accidental species (173) find their way to Canada.
- Migration and colonial nesting present challenges for bird conservation.

Mammals - Quick Facts

- 4,629 mammal species globally.
- 209 resident species of mammals, 45 of which are extant marine species in Canada.
- British Columbia has the most terrestrial mammal species in Canada (118).
- The Pacific Ocean region has the most marine mammal species in Canada (26).
- About two-thirds (66%, 108 species) of terrestrial and about two-thirds (69%, 31 species) of marine mammal species in Canada are considered Secure.
- Five (3%) terrestrial and three (7%) marine mammal species are considered At Risk.
- Forty-three percent (71 species) of terrestrial mammal species are rodents.
- Vancouver Island Marmot is endemic to Canada.

From: Canadian Endangered Species Conservation Council (CESCC). 2001. Wild Species 2000: The General Status of Species in Canada. Ottawa: Minister of Public Works and Government Services Canada.